

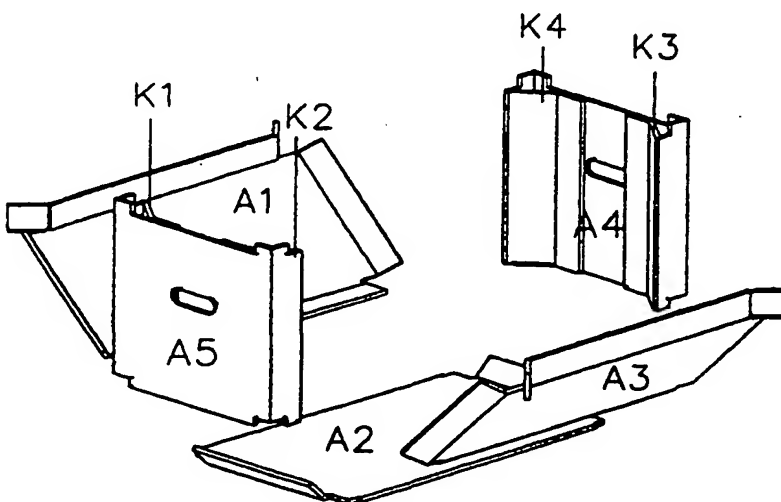
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(21) International Application Number: PCT/GR97/00024 (22) International Filing Date: 30 June 1997 (30.06.97) (30) Priority Data: 960100223 1 July 1996 (01.07.96) GR (71)(72) Applicant and Inventor: TSAMOURGELIS, Ilias [GR/GR]; 8 Kleonon Street, GR-111 42 Athens (GR).		(81) Designated States: AL, AU, BA, BB, BG, BR, CA, CN, CU, CZ, EE, GE, HU, IL, IS, JP, KP, KR, LC, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> OFICINA ESPAÑOLA DE PATENTES Y MARCAS Dpto. SECRETARIA GENERAL REPROGRAFIA Panamá, 1.- Madrid 28071

(54) Title: CARTON BOX MADE OUT OF SEVERAL BLANKS**(57) Abstract**

The invention refers to an economical carton box for packing and transportation of products that can consist of many pieces of corrugated board or solid paper so as in each case and for each side separately the arrangement of the paper's waves is to be indicated. For such an economical carton box the extensions (F1, F2,..., F6) of sides (A1, A2, A3) turn internally by 90° so as to be glued with the outside part of the small sides (A4, A5) accordingly and the F7, F8 to base A2. The extensions (N1, N2) rotate and glue externally to sides (A4 and A5) while columns (K1, K2, K3, K4) are formed at the small sides. When the height of the sides (A1, A3) is equal to the height of the carton box then the extensions (N1, N2) constitute the covering of the carton box. The projections (P1, P2, P3, P4) of sides (A4 and A5) fit into slots (E1, E2, E3, E4) accordingly during the piling of the boxes.



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CARTON BOX MADE OUT OF SEVERAL BLANKS

The invention is referred to an economical carton box which is at the same time very resistant and useful to packing and transportation of agricultural and industrial products.

- 5 Till today many boxes are known to be used in packing and transportation of agricultural and industrial products which are formed by a single paper surface. The blank of this paper which is usually large has as a consequence to create problems during the production of the corrugated board at the corresponding industries. Each time the
10 appropriate combinations should be done as far as the dimensions are concerned in order to decrease the remains of the corrugated board which is not always attainable.

- Also the arrangement of the waves of the corrugated board out of
15 which a carton box is constructed is as a matter of fact, made towards one direction resulting that certain sides of it appear to lack resistance not because the quality or the paper weight are not satisfactory but due to the inappropriate arrangement of the waves of the corrugated board.

- 20 The advantage of this invention is that a carton box or tray can be constructed by different pieces of corrugated board or solid paper that are held together with glue.

- 25 In this way the combinations in the corrugated board or solid paper productive lines become much easier since the blank of the papers is smaller and moreover at each side of the carton box, papers with the appropriate paper arrangement can be used and thus we finally have a very economical and resistant carton box.

- 30 Figure 1 shows the blank of the economical carton box according to the invention in case that all the carton box's sides and its base are consisted of different pieces of paper and triangular columns are formed in its corners and inner paper refolding are made in the large
35 sides.

Figure 11 demonstrates the way the formation is arranged according to the invention.

- 40 Figure 12 shows the appearance of a formed economical carton box according to the invention.

- Figure 2 shows the blank of the economical carton box according to the invention whose triangular columns' are different of those of Figure
45 1 and there are no inner paper refolding in the large sides of the carton box.

Figure 21 demonstrates the way the formation is arranged according to the invention.

5 Figure 22 shows the appearance of a formed economical carton box according to the invention.

Figure 3 shows the blank of the economical carton box according to the invention at which with relevant paper refolding, its corners become double.

10

Figure 31 demonstrates the way the formation is arranged according to the invention.

15 Figure 32 shows the appearance of a formed economical carton box according to the invention.

Figure 4 shows the blank of the economical carton box according to the invention whose columns' have the shape of a rectangular trapezium.

20

Figure 41 demonstrates the way the formation is arranged according to the invention.

25 Figure 42 shows the appearance of a formed economical carton box according to the invention.

Figure 5 shows the blank of the economical carton box according to the invention whose columns' have the shape of a rectangular trapezium which is however formed in a different way from that in Figure 4.

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Figure 51 demonstrates the way the formation is arranged according to the invention.

35 Figure 52 shows the appearance of a formed economical carton box according to the invention.

Figure 6 shows the blank of the economical carton box according to the invention in which the paper refolding that are made at its small sides have as a result that these sides are formed by successive flat sheets of paper.

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Figure 61 demonstrates the way the formation is arranged according to the invention.

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Figure 62 shows the appearance of a formed economical carton box according to the invention.

Figure 7 shows the blank of the economical carton box according to the invention at which the upper extensions of the small sides are

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refolded accordingly and both the large sides and the base of the carton box are formed by a single piece of corrugated board or solid paper.

- 5 Figure 71 demonstrates the way the formation is arranged according to the invention.

Figure 72 shows the appearance of a formed economical carton box according to the invention.

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Figure 8 shows the blank of the economical carton box according to the invention in case that the large sides are extended accordingly and on these extensions there are hooks so as the carton box is covered while on the extensions of the small sides there are specific slots for the penetration of the hooks.

15

Figure 81 demonstrates the way the formation is arranged according to the invention.

- 20 Figure 82 shows the appearance of a formed economical carton box according to the invention.

Figure 9 shows the blank of the economical carton box according to the invention in case that the large sides are extended so as the carton box is covered and the small sides are glued together.

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Figure 91 demonstrates the way the formation is arranged according to the invention.

- 30 Figure 92 shows the appearance of a formed economical carton box according to the invention.

Figure 10 shows the blank of the economical carton box according to the invention in case that paper addition at the small sides is taking place in order to reinforce its resistance.

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Figure 101 demonstrates the way the formation is arranged according to the invention.

- 40 Figure 102 shows the appearance of a formed economical carton box according to the invention.

Applications of the inventions are described below.

- 45 The interrupted lines in all Figures represent the folding of the paper material and the uninterrupted ones represent its cuttings.

The reference regards the one fourth or one half of the carton box for each case because of its symmetry against both the horizontal and vertical axis that go through its center.

50

Each paper surface may have different thickness but in case at issue this will be considered to be the same with the others and equal to p .

- 5 a) Figure 1 shows surfaces of corrugated board or solid paper that are being cut and folded according to it so as the sides A1, A2, A3 of the carton box can be formed as well as their extensions F1, F2, ..., F8 of f_i length, the N1, N2 of n_i length, the D1, D2, D3, D4 of d_i width, the small sides of the carton box A4 and A5 with the triangular columns K1, K2, K3, K4, which are formed by a relevant refolding of the 1,2,3
10 surfaces a,b,c length and equivalently the projections P1, P2, P3, P4.

- Also at all paper surfaces relevant cuttings are made in order finally to arise the slots E1, E2, E3, E4 of a carton box as Figure 12 shows and whose dimensions' are equivalent to those of the projections P1,
15 P2, P3, P4 so as during the piling of the carton boxes their appropriate fixing can be accomplished.

- According to the present invention at A4 and A5 sides the surfaces 3 of c length rotate by 45° externally (in case the triangular column is isosceles), also the surfaces 2 of b length rotate at 135° internally and finally the surfaces 1 at length a rotate internally by 90° resulting that the inner side of surfaces 3 touch the sides A4 and A5 and thus the triangular columns K1, K2, K4, K4 are finally formed.

- 25 Also surfaces F7 and F8 of A1 and A3 sides equivalently glue together with A2 side in such way that a single rectangular parallelogram is formed with A2 side usually above the surface F7 and F8.
The dimensions of this single surface are $[W1+2(H1+n_i)] \times (L1+2f_i)$

- 30 The A1 and A3 sides rotate internally by 90° and afterwards the A4 and A5 sides are put vertically towards the A1, A2, A3 surfaces with the projections P1, P2, P3, P4 placed upwards and in such position that the surfaces F1, F2, F3 and F4, F5, F6 when rotated internally by 90° they are touched with A5 and A4 sides so as the gluing together
35 of all the carton box's sides can be finally accomplished by the insertion of the glue.

- Afterwards the N1, N2 sides rotated internally by 180° are glued together with A1 and A3 sides equivalently while the D1, D2, D3, D4
40 dimensions are glued on the small sides of the carton box and particularly on their surfaces 2.

- The carton box that is formed by this way has external dimensions with length $L=L1+2p$, width $W=W1+2p=W2+4p$ and height H (without
45 estimating the height of projections P1, P2, P3, P4).

With accordance to the ventilation demands of the packed products an airing gap is formed which is defined by the difference of height H of the carton and sides A1 and A3 with high $H1$, that means $(H-H1)$.

5

Regarding the f_i and n_i lengths of the extensions F_i / $i=1,2, \dots, 8$ and N_i / $i=1,2$, $f_i > 0$ and $0 \leq n_i \leq H_1 - p$ valid.
Also $0 \leq d_i \leq b+c$ when $n_i > 0$.

- 5 The extensions F_7 , F_8 of sides A_1 , A_3 accordingly can be erased by them and become extensions of base A_2 of the carton box as well as the F_2 , F_5 which are extensions of A_2 can be erased and become extensions of sides A_5 and A_4 accordingly.
- 10 b) Figure 2 according to the invention shows surfaces of corrugated board or solid paper which are being cut and folded accordingly to this, so as during their formation, Figure 21, to be arise the box of Figure 22.
- 15 According to the present invention at A_4 and A_5 surfaces 3 rotate orderly, internally by 135° , then surfaces 2 turn internally by 135° and finally surfaces 1 rotate internally by 90° with the consequence the outer side of surfaces 1 to be touched and glued with A_4 and A_5 . In this case $n_i = 0$ and for length c valid $0 < c \leq \sqrt{b^2 - (a-p)^2}$
- 20 c) Figure 3 according to the invention shows surfaces of corrugated board or solid paper which are being cut and folded accordingly to this so as during their formation, Figure 31, to be arise the box of Figure 32.
- 25 In this case at sides A_4 and A_5 the columns K_1 , K_2 , K_3 , K_4 that are formed become by the orderly external rotation of surfaces 4 by 90° , the internal rotation of surfaces 3 by 90° , of 2 internally by 90° and finally of 1 internally by 90° .
- 30 For lengths a, b, c, e $c = a - 2p$, $b = 2p$, $0 \leq e \leq (W_2/2 - 2p)$ valid. Especially when $e = 0$ then $0 < c \leq a - 2p$.
- 35 d) Figure 4 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so as during their formation, Figure 41, to be arise the box of Figure 42.
- In this case at A_4 and A_5 the rotations of surfaces 1,2,3,4 are taking place so that columns K_1 , K_2 , K_3 , K_4 to have the shape of a
- 40 rectangular trapezium and attached surface the inner side of 4. Here valid $a > 2p$, $b \neq 0$, $c > a - p$.
- e) Figure 5 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so
- 45 as during their formation, Figure 51, to be arise the box of Figure 52.
- In this case at A_4 and A_5 the rotations of surfaces 1,2,3,4 are taking place so as columns K_1 , K_2 , K_3 , K_4 to have the shape of a rectangular trapezium and attached surface the external side of 4.
- 50 Here valid $a > 2p$, $b \neq 0$, $0 < e \leq (b-p) + \sqrt{[(c-p)^2 - (a-p)^2]}$.

f) Figure 6 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so as during their formation, Figure 61, to be arise the box of Figure 62.

- 5 According to the invention the surface 2 turns internally by 90° against the 1 and the 1 internally by 90° too.
In this case $a=2b$ and $2b \leq W2$ valid.

- 10 In case that surfaces A4, A5 are the same to each other but none symmetrical to the axis which comes vertically through their center and valid one out of a to be equal to $2p$ and the other equal to $3p$ then the sides A4 and A5 are formed by three successive sheets of paper and then valid $(W2/2) < b \leq W2$.

- 15 On base A2 are formed grooves O1 and O2 so that projections P1 and P2 fit to them during the boxes piling. When the high of projections P1 and P2 is bigger than p then we have to cut equivalent slots E1 and E2 to the sides A5 and A4

- 20 g) Figure 7 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so as during their formation, Figure 71, to be arise the box of Figure 72.

- 25 In this case the extensions 5 of A4 and A5 rotate internally by 90° and afterwards the 6 internally by 90° too so as finally to be glued with A4 and A5 conditioning that $H1+j \leq H+2p$. Then $r \leq a$ also valid. When $H1=H-p$ then surfaces 6 glue together with sides A1 and A3 and $r \neq 0$ and $j \leq H1$ valid.

- 30 Also according to the present invention sides A1, A2 and A3 can be consisted by a single surface of paper as Figure 1 shows.

- h) Figure 8 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so as during their formation, Figure 81, to be arise the box of Figure 82.

- 40 According to the invention when the height of sides A1 and A3 is equal to the height of box H then the projections N1, N2 of those sides accordingly being rotated internally by 90° function as the covering of the box.

- 45 Surfaces G1, G2, G3, G4 having the shape of hooks insert into the relevant slots G1', G2', G3', G4' that there are on surfaces 5 which have firstly being rotated to the inner side of the box by 90° as Figure 82 shows.

The equations $r > 2p$, $2ni \leq W1$ valid.

- 50 i) Figure 9 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so as during their formation, Figure 91, to be arise the box of Figure 92.

In this case surfaces D1, D2, D3, D4 glue externally with A4 and A5 and in case that $d_i = 0$ and $2n_i > W_1$ then surfaces N1 and N2 can be glued together since they touch each other.

- 5 When $d_i = 0$ and $2n_i < W_1$ valid then the creation of a cover at the whole surface of the carton box becomes by the insertion under the N1 and N2 of another paper surface of maximum dimensions $L_1 \times W_1$ that each of N1 and N2 glues with this surface.
- 10 j) Figure 10 according to the invention shows surfaces of corrugated board or solid paper that are being cut and folded according to this so as during their formation, Figure 101, to be arise the box of Figure 102.
- 15 In this case in the inner part of sides A4 and A5 of the box the flat surfaces of paper A6 and A7 dimensioned $(H-p) \times (W_1-4p)$ are glued together and afterwards the refolding of the surfaces 1,2,3 and 1,2,3,4 are taking place according to the shape that each time the columns K1,K2,K3,K4 have or the surfaces 1,2 in case that columns do not
- 20 exist.

- Generally in accordance with the present invention the sides A1, A2, A3 not only each of them can be a separate part of an corrugated board or solid paper or be formed by a single surface of an undulating
- 25 or solid paper, but also can be formed per two continuos sides by one single piece of paper.

- According to the present invention in each above mentioned case relevant to the packed product the means of transport, the conditions
- 30 of warehousing, etc., handles and holes of ventilation are opened on the surfaces of the economical carton box.

CLAIMS

- 1) Economical carton box for packing and transportation of agricultural and industrial products characterized by the fact that all sides A1, A3, A4, A5 as well as the base A2 consisted by different pieces of paper (corrugated board, solid paper, etc.) which are glued together with the relevant rotation of their extensions F1, F2, F3, F4, F5, F6, F7, F8.
- 5 At its small sides triangular columns K1, K2, K3, K4 and the projections P1, P2, P3, P4 are formed, because the surfaces 3 at c length are rotating externally by 45° (conditioning that the triangular column is isosceles) then the surfaces 2 at b length internally by 135°
- 10 and finally the surfaces 1 at a length internally by 90° in order the internal side of surface 3 at c length to be touched and glue with A4 and A5 sides.
- At its large sides refolding of N1 and N2 surfaces take place internally by 180° and gluing together with A1 and A3 accordingly as well as the relevant refolding of surfaces D1, D2, D3, D4 and their gluing with
- 15 surface 2 of the triangular columns K1, K2, K3, K4 equivalently. At all sides relevant cuttings are made so as finally the slots E1, E2, E3, E4 of the carton box to be appeared whose dimensions are relevant to P1, P2, P3, P4 extensions, so as during the piling of the carton boxes
- 20 the best loading to be managed.

For the lengths f_i and n_i of the extensions F_i / $i = 1, 2, \dots, 8$ and N_i / $i = 1, 2$ accordingly valid $f_i > 0$ and $0 \leq n_i \leq H_1 - p$ / H_1 is the height of sides A1 and A3 and p the thickness of the paper. Also when $n_i > 0$ then for

25 length d_i / $i = 1, 2, 3, 4$ valid $0 \leq d_i \leq b$ / b is the length of surface 2.

- 2) Economical carton box according to claim 1 characterized by the fact that the triangular columns K1, K2, K3, K4, are formed in such a way that the external side of surface 3, c length, to be touched and
- 30 glued together with side A4 and A5. For length c $0 < c \leq \sqrt{b^2 - (a-p)^2}$ valid.

- 3) Economical carton box according to claim 1 characterized by the fact that columns K1, K2, K3, K4 are formed by the following rotation
- 35 line, externally of surfaces 4 by 90° , internally of surfaces 3 by 90° , internally of 2 by 90° and finally internally of 1 by 90° .
- For the lengths a, b, c, e of the surfaces 1, 2, 3, 4, accordingly $c = a - 2p$, $b = 2p$, $0 \leq e \leq (W/2 - 2p)$ valid.
- When $e = 0$ then $0 < c \leq a - 2p$.
- 40 When $n_i > 0$ then for length d_i / $i = 1, 2, 3, 4$ $0 \leq d_i \leq c$ valid.

- 4) Economical carton box according to claim 1 characterized by the fact that columns K1, K2, K3, K4 have the figure of a rectangular trapezium and as attached surface of sides A4 and A5 the internal
- 45 side of 4.

Here valid $a > 2p$, $b \neq 0$, $c > a - p$ / a, b, c are the lengths of surfaces 1, 2, 3, accordingly.

When $n_i > 0$ then referring to length d_i / $i=1,2,3,4$ $0 \leq d_i \leq b$ valid / b is the length of surface 2.

- 5) Economical carton box according to claims 1 and 4 characterized by the fact that columns K1,K2,K3,K4 have the shape of rectangular trapezium and attached surface of sides A4 and A5 the external side of 4.

Here valid $a > 2p$, $b \neq 0$, $0 < e \leq (b-p) + \sqrt{(c-p)^2 - (a-p)^2}$ / e is the length of surface 4.

- 6) Economical carton box according to claim 1 characterized by the fact that surface 2 rotates internally by 90° and then surface 1 internally by 90° too. At the base A2 the slots O1 and O2 are formed so as the extensions P1 and P2 to insert in them accordingly during the piling of the boxes. When the height of the extensions P1 and P2 is bigger than p then relevant slots E1 and E2 are formed at sides A5 and A4 accordingly.

Here valid $a = 2p$ and $2b \leq W2$.

- 20 When $(W2/2) < b \leq W2$ then surfaces A4, A5 are alike together but not symmetrical to the axis which crosses vertically their centers and then one of each a equals to $2p$ and the other equals to $3p$ with the consequence that sides A4 and A5 to be formed by three successive sheets of paper.

25

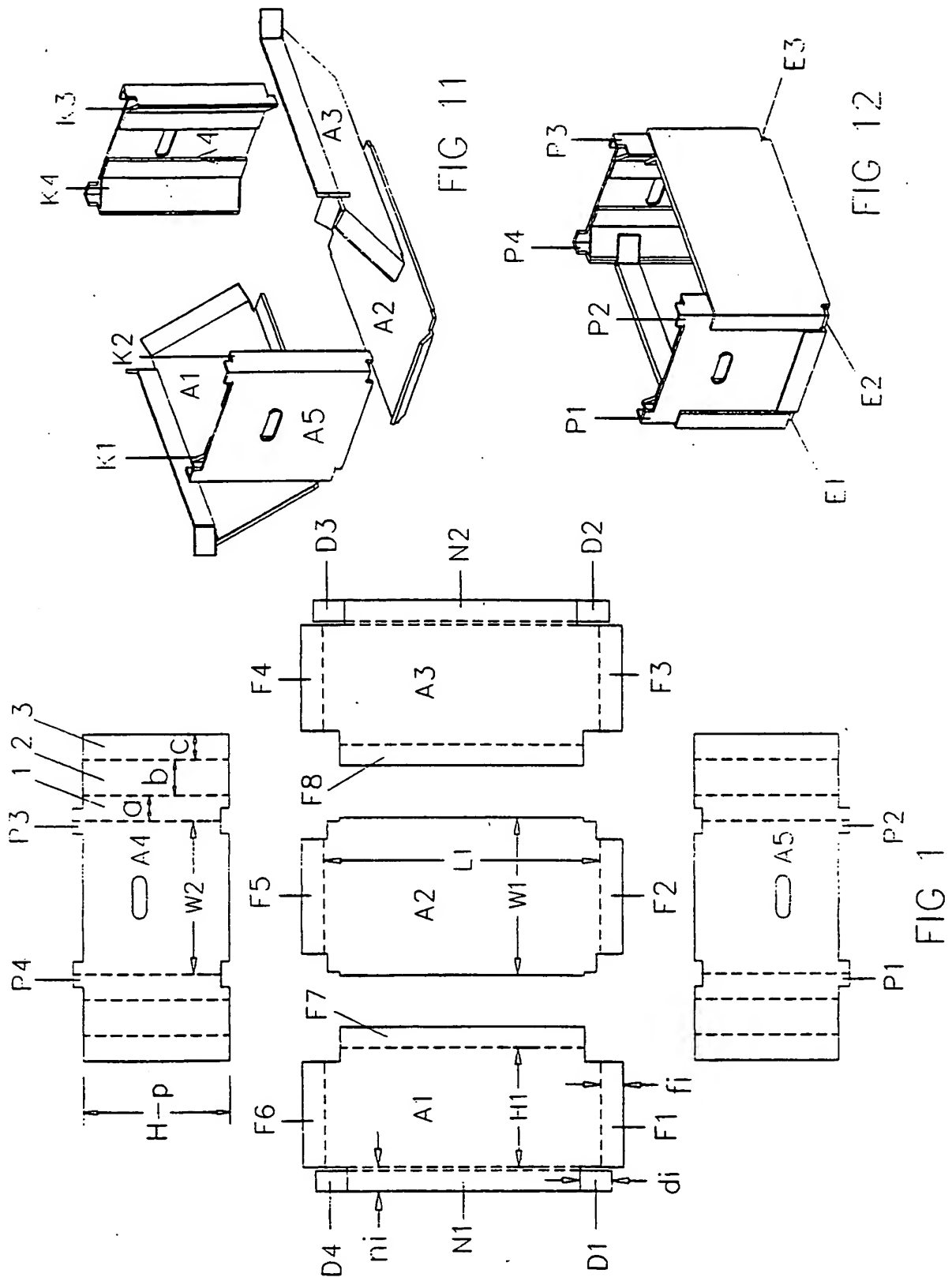
- 7) Economical carton box according to claims 1,2,3,4,5,6 characterized by the fact that extensions 5 of A4 and A5 rotate internally by 90° and also afterwards the 6 internally by 90° so as finally to be glued with A4 and A5 in case that $H1 + j \leq H + 2p$ and $r \leq a$ valid. When $H1 = H - p$ then the 6 surfaces glue together with sides A1 and A3 for every $r > 0$ and $j \leq H1$.

- 8) Economical carton box according to claims 1,2,3,4,5,6 characterized by the fact that the extensions N1, N2 of sides A1 and A3 accordingly rotating internally by 90° function as a cover of the box taking for granted that the height $H1$ of sides A1 and A3 is equal to the height of the box. Surfaces G1,G2,G3,G4 having the shape of hooks insert into the relevant slots G1',G2',G3',G4' that there are on surfaces 5 which have firstly been rotated internally towards the box by 90° .

The equations $r > 2p$, $2n_i \leq W1$ valid.

- 9) Economical carton box according to claim 8 characterized by the fact that surface D1,D2,D3,D4 glue externally with A4 and A5. In case that $d_i = 0$ and $2n_i > W1$ then surfaces N1 and N2 can be glued together. When $d_i = 0$ and $2n_i < W1$ then the covering of the box is made by the insertion of another paper surface of maximum dimensions $L1 \times W1$ under the N1 and N2 so as each of them (N1 and N2) to be glued with the other surface.

- 10) Economical carton box according to claims 1,2,3,4,5,6,7,8,9 characterized by the fact that the inner part of the sides A4 and A5 of the box the flat surfaces of paper A6 and A7 are glued with dimensions (H-p)x(W1-4p) and then the refolding of surfaces 1,2,3 or 1,2,3,4 are taking place according to the shape that columns K1,K2,K3,K4 have or surfaces 1,2 in case that columns are not formed.
- 5
- 11) Economical carton box according to claims 1,2,3,4,5,6,7,8,9,10 characterized by the fact that either sides A1,A2,A3 or per two uninterrupted sides A1,A2 or A2,A3 are consisted of a single sheet of paper.
- 10
- 12) Economical carton box according to claims 1,2,3,4,5,6,7,8,9,10,11 characterized by the fact that extensions F7,F8 of the sides A1,A3 accordingly can be wiped off by those and become extensions of base A2 of the carton box as well as the F2,F5 which are extensions of A2 can be wiped off and become extensions of sides A5 and A4 accordingly.
- 15



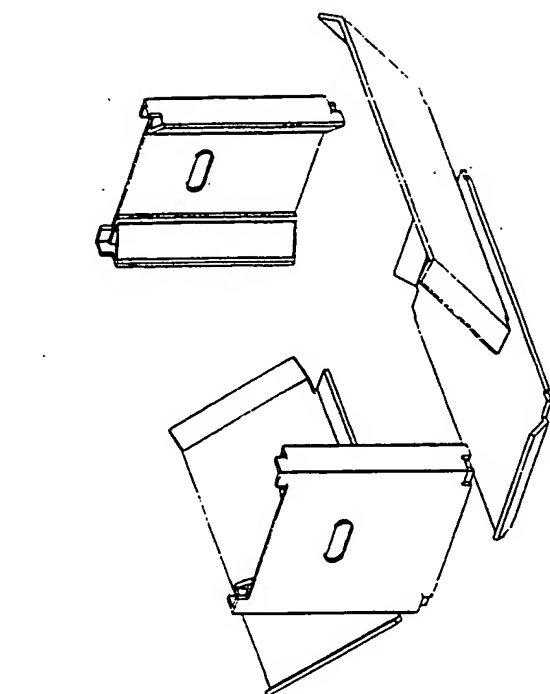


FIG 21

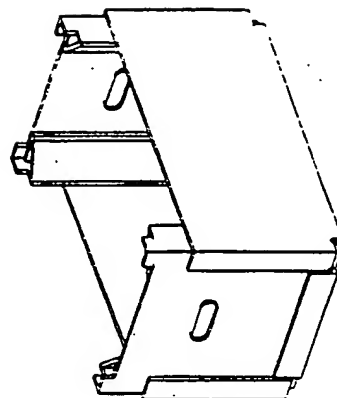


FIG 22

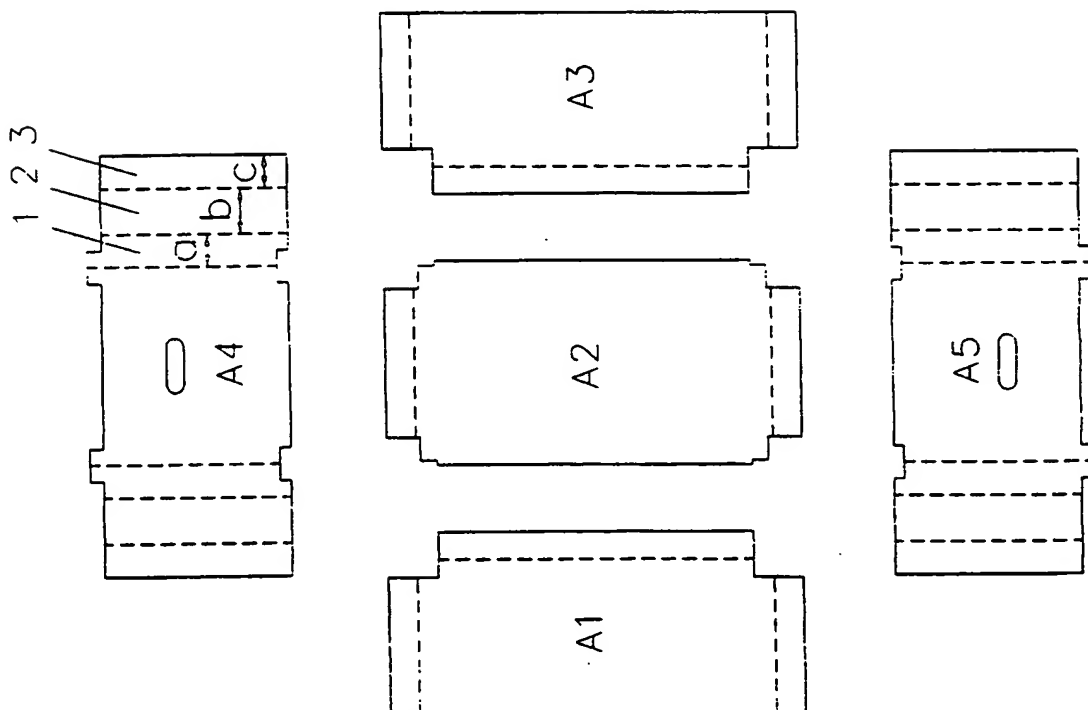


FIG 2

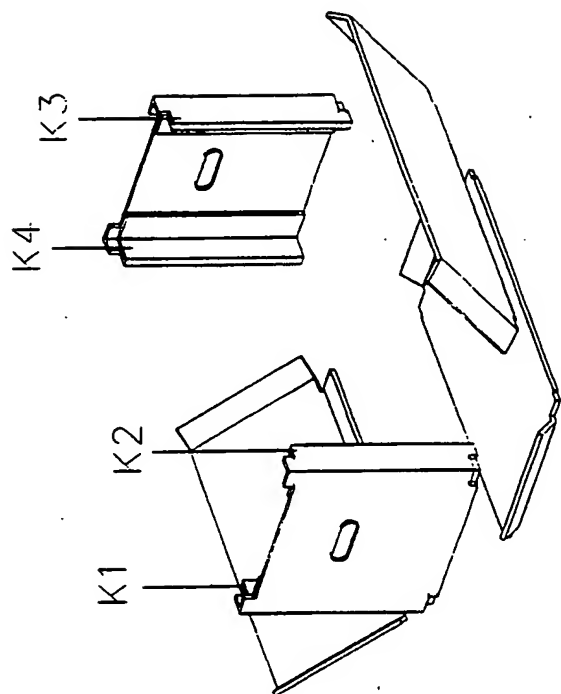


FIG 31

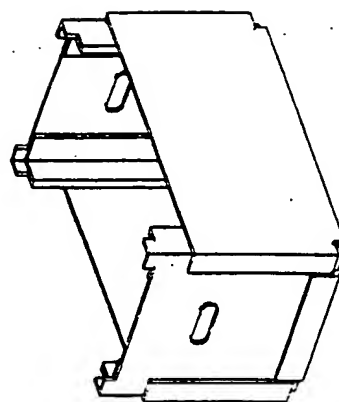


FIG 32

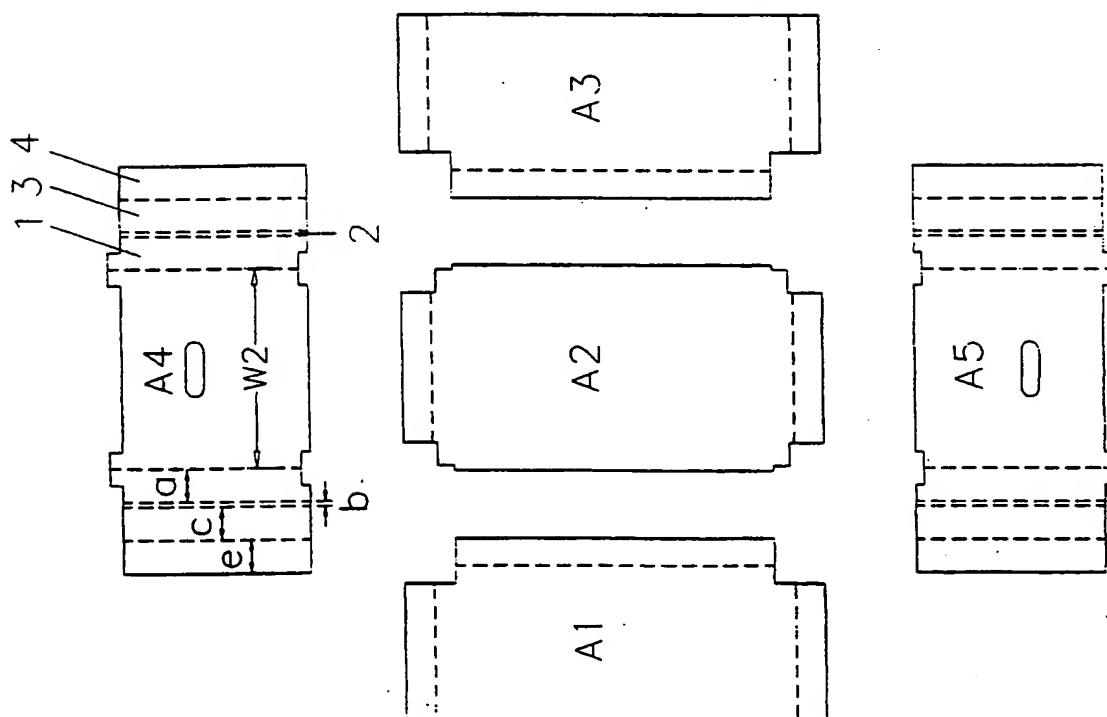
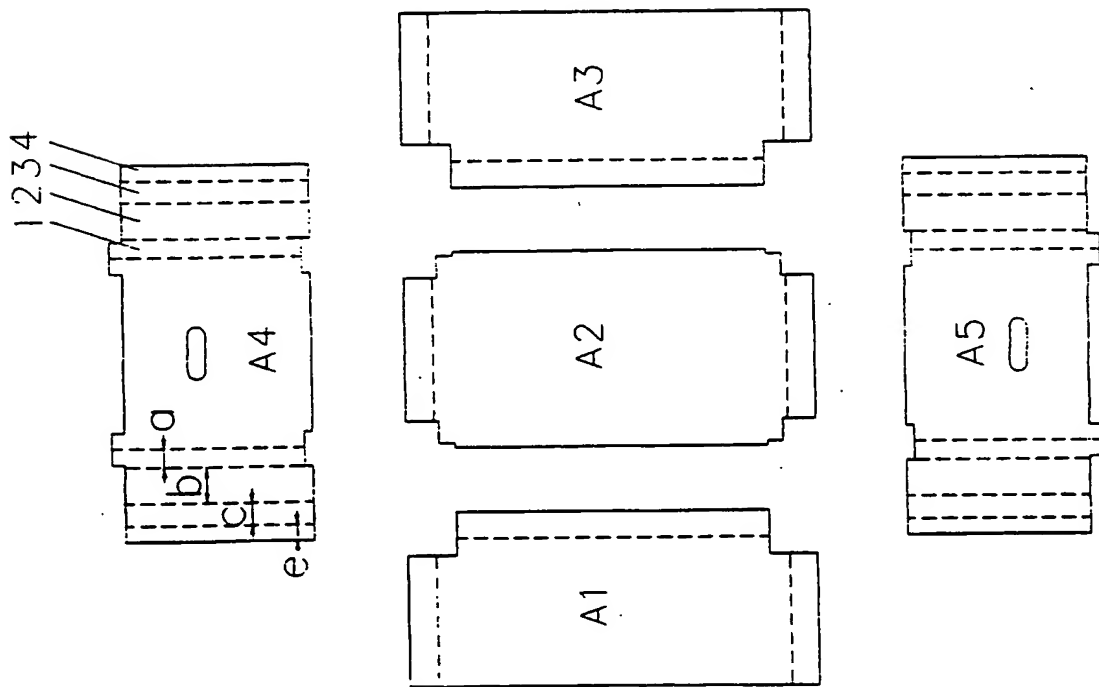
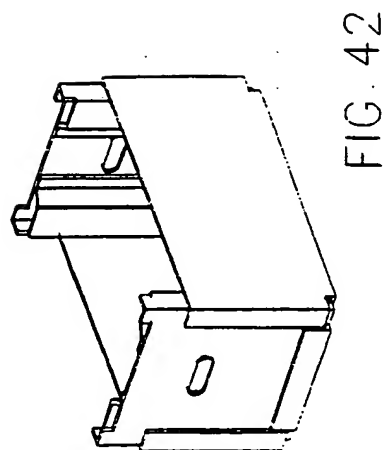
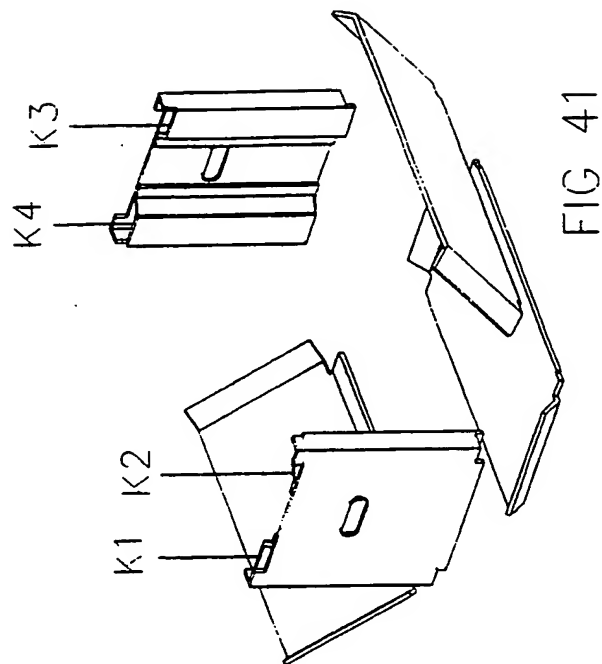


FIG 3



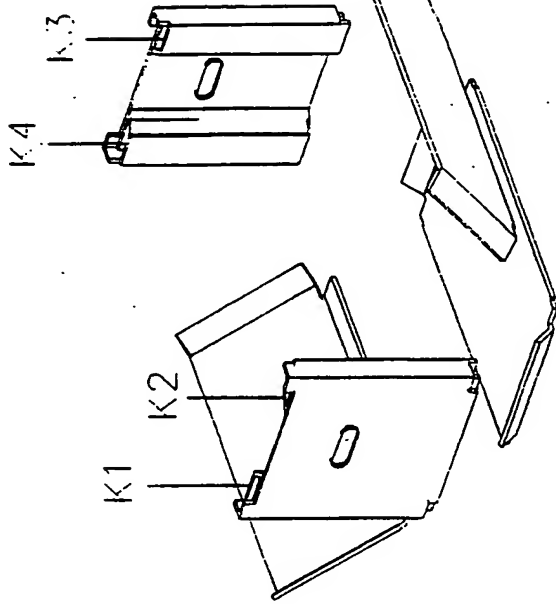


FIG 51

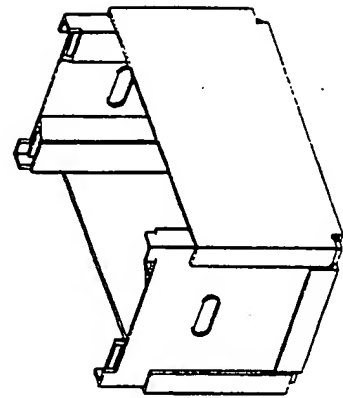


FIG 52

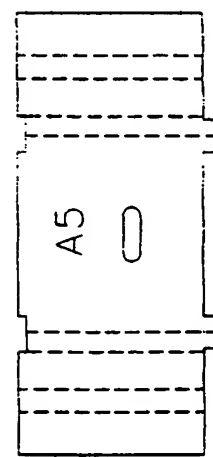
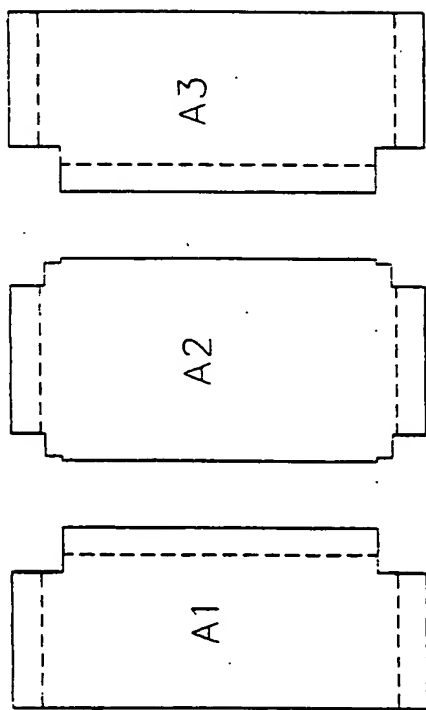
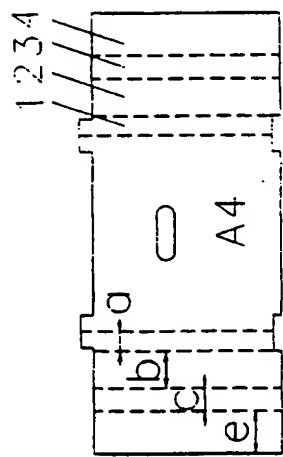
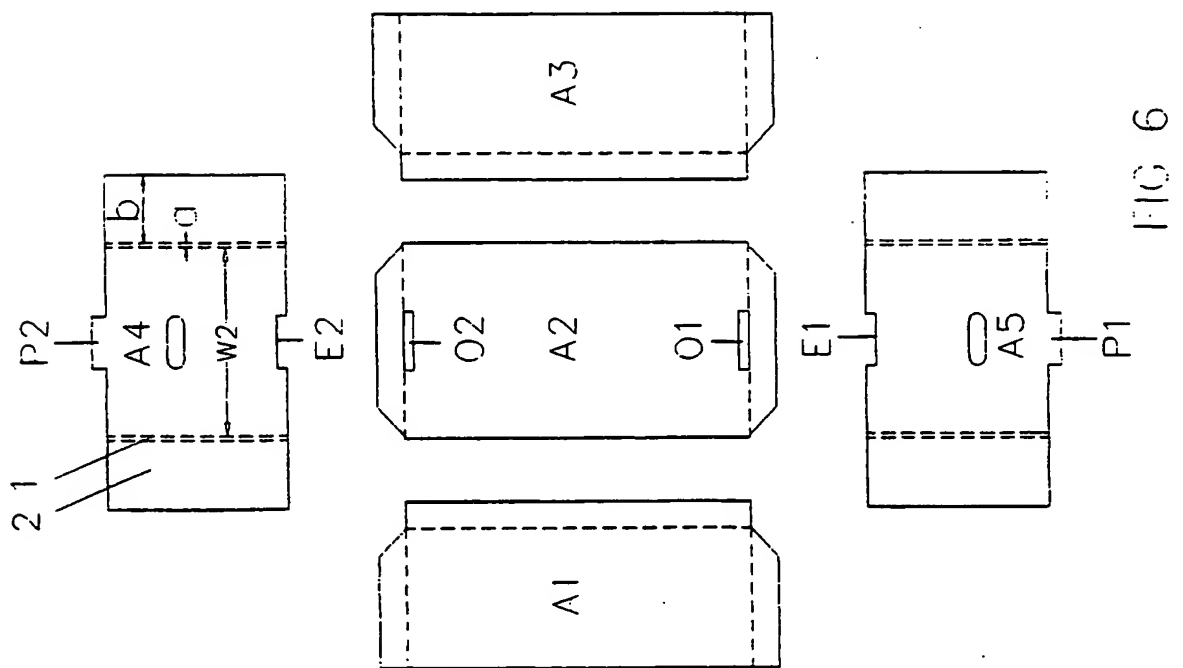
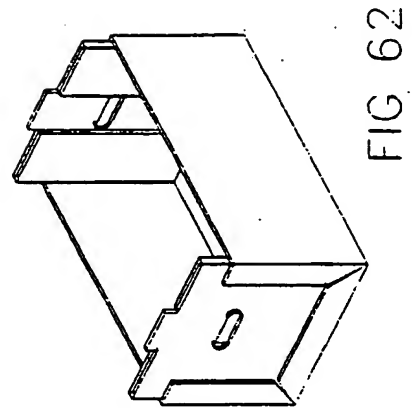
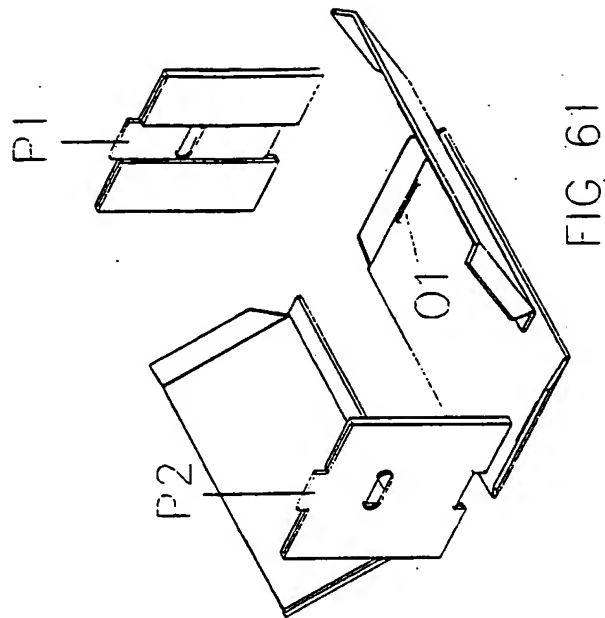


FIG 5



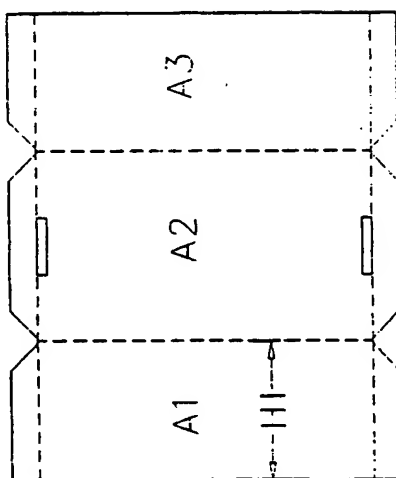
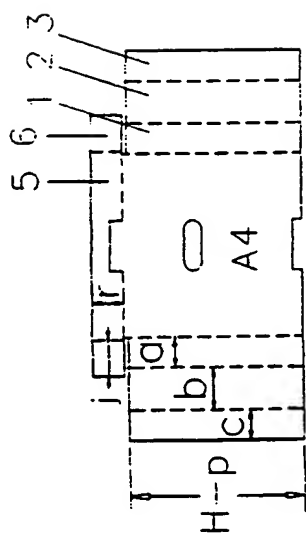


FIG 71

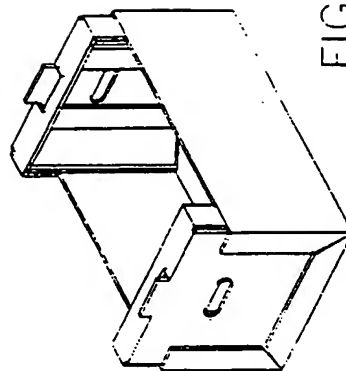


FIG 72

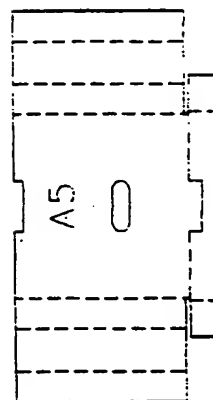


FIG 7

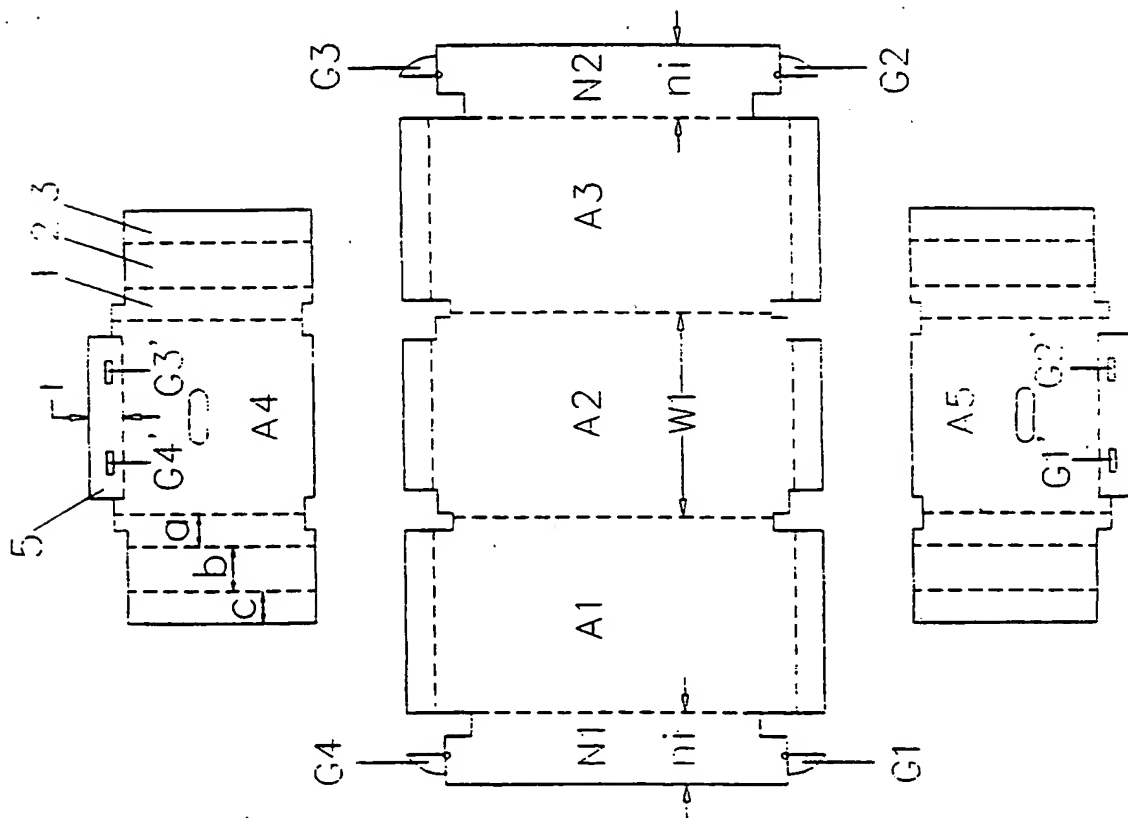


FIG 8

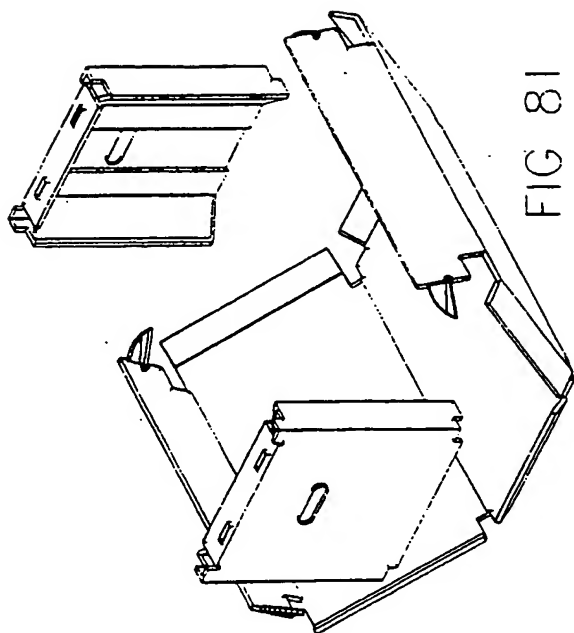


FIG 81

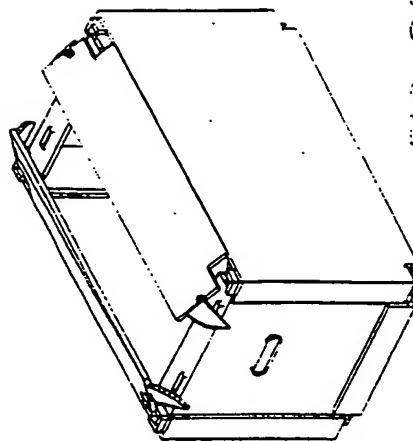


FIG 82

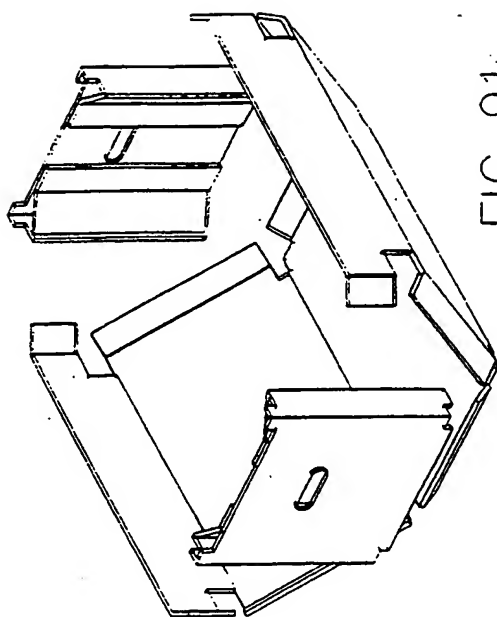


FIG 91

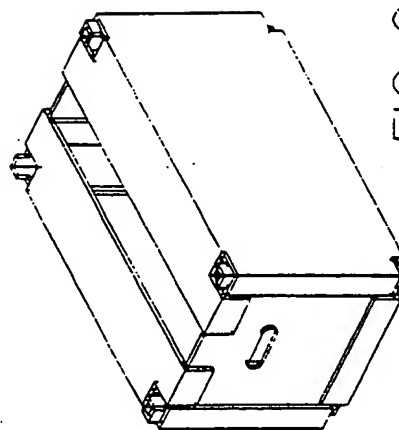


FIG 92

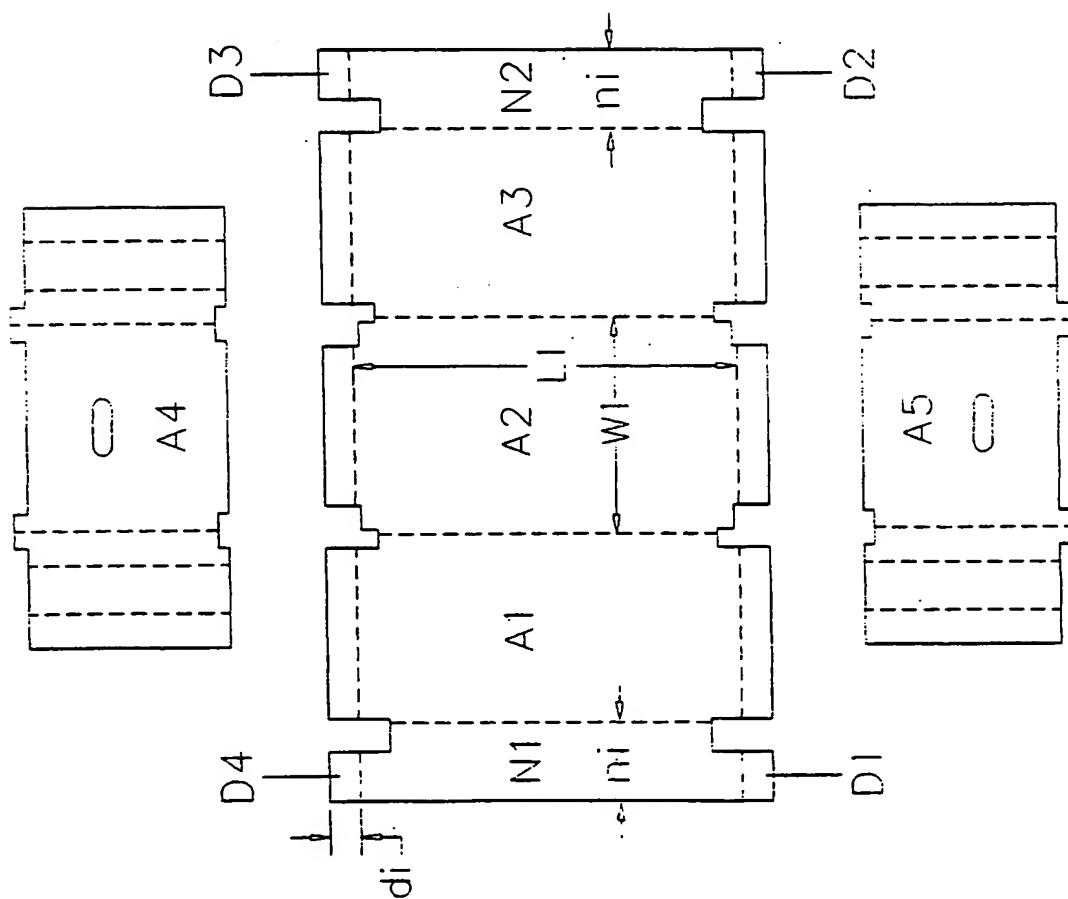


FIG 9

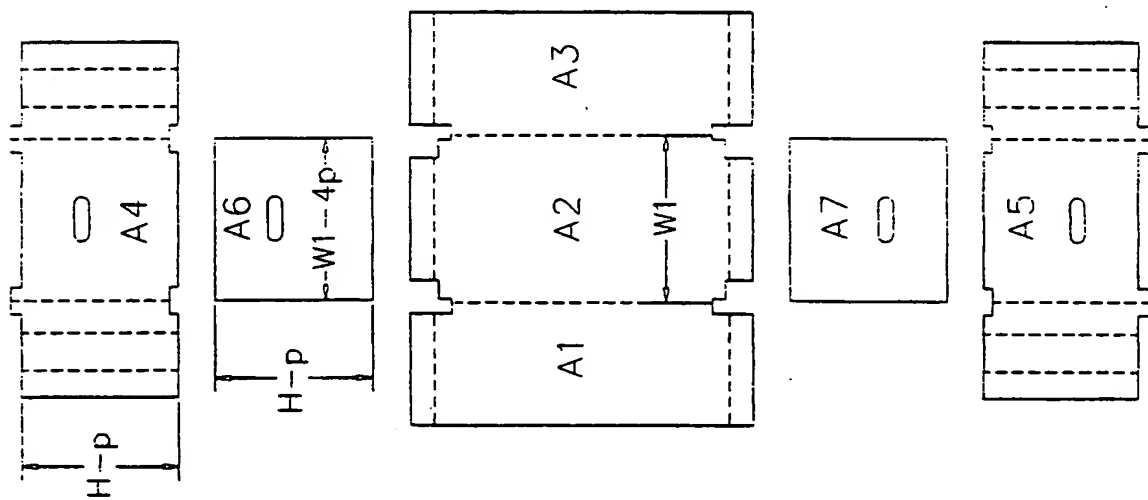


FIG 10

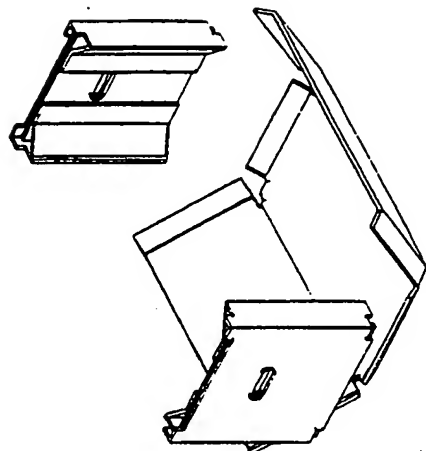


FIG 101

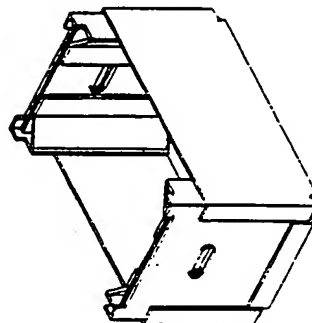


FIG 102

INTERNATIONAL SEARCH REPORT

Intern: International Application No

PCT/GR 97/00024

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B65D5/32 B65D5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B65D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 573 381 A (VIDECART SA) 8 December 1993 see column 9, line 1 - column 10, line 50; figures 19-34 ---	1,6
A	FR 1 358 881 A (SAVES S.P.A.) 22 July 1964 see page 2, left-hand column, last paragraph - right-hand column, paragraph 2; figures 4,5 ---	1,9
A	EP 0 621 192 A (GSF VERPAKKINGEN BV) 26 October 1994 see abstract; figures ---	1,3,6,7, 11,12
A	EP 0 538 098 A (J3C SARL) 21 April 1993 see claims; figures ---	1,4,7, 11,12
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

27 October 1997

Date of mailing of the international search report

31.10.97

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SERRANO GALARRAGA, J

INTERNATIONAL SEARCH REPORT

Intern. Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	FR 1 409 752 A (SOCIETE DES ANCIENS ETABLISSEMENTS WALTON & PLACE) 8 December 1965 see the whole document ---	1,2,8, 11,12
A	EP 0 394 544 A (HOFFMANN GUENTER GMBH CO KG) 31 October 1990 see column 3, line 25 - line 30; figures 3,6 -----	1,5,11, 12

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Information on patent family members

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PCT/GR 97/00024

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		EP 0394549 A	31-10-90
